No. 72136

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Wisconsin Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS Y THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

OAT

'Dal'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 27th *day of* October *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

L. R. Rollins

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John A. Knebel

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY
Dal	Oats	PV NUMBER 72136
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 5·8·72 / TIME 2 [redacted] P.M.
Avena sativa	gramineae	FEE RECEIVED $ 250.00 $ 250.00 $ 250.00 / BALANCE DUE $ — $ — $ —
	5. DATE OF DETERMINATION December 17, 1971	

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Wisconsin Agricultural Experiment Station	Agricultural Hall University of Wisconsin Madison, Wisconsin 53706	608 262-6527 262-3994

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Agricultural Experiment Station		

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

H. L. Shands, Agronomy Bldg., Madison, Wis. 53706

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Botanical Description of the Variety
- [X] 13C. Exhibit C, Objective Description of the Variety
- [X] 13D. Exhibit D, Data Indicative of Novelty
- [X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED [X] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

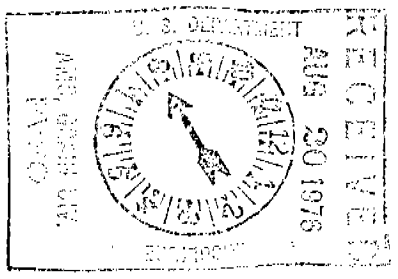
May 15, 1972
(DATE)

H. L. Shands
(SIGNATURE OF APPLICANT)

Revised Aug. 12, 1976
(DATE)

1
(SIGNATURE OF APPLICANT)

FORM GR-470 (REVERSE)



INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

Exhibit A. Origin and Breeding History of Dal Oats C.I. 9159.

Dal was developed from a series of crosses, the final one being X660, an unnamed selection, crossed with Beedee. X660 is a progeny of Trispernia crossed with Belair in 1951. X660 provided very good leaf rust resistance. Beedee was selected from the cross of Beacon, a Canadian variety, and Hawkeye-Victoria. Beedee was distributed in 1956. The Hawkeye-Victoria selection was not released, except for testing purposes. The final of a series of crosses in the breeding of Dal was made in the greenhouse in 1961 as shown in breeding diagram of Wis. bulletin R2569. The F_1 was grown in the nursery in 1961. F_2 spaced plants were grown in 1962. F_3 was grown in head (panicle) rows 1963; F_4, in head rows 1965; and F_5 in single 10-foot row in 1966. Thereafter yield testing was in replicated trials followed by increasing and distributing seed. Foundation seed of Dal was released to growers of certified seed in Wisconsin in the early part of 1972. Dal is largely self pollinated and considered stable. There is less than one-half of one percent of fluorescing grain, or taller strawed plants.

Revised Aug. 12, 1976.

Exhibit B. Botanial Description of Dal Oats.

Dal oats is classified as Avena sativa L. Plants are mid-height, with mid-size leaves consisting of sheath, ligule, and blade. Blade often has small diffuse irregular spots that may be called "physiological." Panicle is equilateral with ascending branches during kernel filling but less erect at maturity. Rachis is straight. Caryopsis is retained by a semi-coriaceous lemma and a membranous palea. Spikelet separation is by fracture and floret separation is by disarticulation. Lemma color is yellow when mature. Kernel weight averages about 28 mg. Groat percent is about 74. Lemma awns are absent or infrequent.

Revised Aug. 12, 1976.

Exhibit D. Data Indicative of Novelty of Dal.

Novelty of Dal oats is based on:

Parentage different from other oat varieties.

Increased groat protein over other varieties except for about the same as for Otee, but less than that of Goodland.

Crown rust response differs from other varieties. Dal has more resistance to crown rust in Midwest than other varieties available.

Detail: X660 x Beedee (See exhibit 12 A and bulletin R2569.)

Crown rust response and groat protein, the latter is average for 7 Wisconsin locations for 1970 and 1971.

	Crown rust %			Protein, as is %		
	1970	1971	Avg.	1970	1971	Avg.
Dal	9.7	0.8	0.8	21.8	18.9	20.4
Froker	2.0	2.4	2.2	18.7	16.7	17.7

8/27/76 JC

GOODLAND is the most similar variety to Dal oats

~~There is considerable similarity between Dal and Goodland oats.~~

Positive difference: Dal kernels appear light colored under U.V. light while Goodland is dark colored.

Lesser differences: Dal has smaller kernels, lower kernel weight and lower groat protein, but higher oil percent than Goodland. Dal lemma color is lighter than Goodland's. Dal has a few hairs at base of kernel. There are no hairs at base of Goodland kernels. Dal has slightly higher bushel weight than Goodland. Dal has taller plants than Goodland. Dal has more crown rust resistance than Goodland. Dal has intermediate barley yellow dwarf virus reaction, while Goodland is susceptible.

A single Dal-Froker comparison: Dal kernels appear light under U.V. light while Froker kernels are dark.

A single Dal-Lodi comparison: Lodi has taller plants but lower bushel weight than Dal.

Revised Aug. 12, 1976

7200136

Exhibit E.

The Wisconsin Agricultural Experiment Station is the sole owner of Dal Oats.

Revised Aug. 12, 1976

FORM APPROVED: OMB NO. 40-R3712

FORM GR-470-35
(1-76)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF VARIETY
OAT
(Avena spp.)

NAME OF APPLICANT(S): H. L. Shands

VARIETY NAME OR TEMPORARY DESIGNATION: DAL

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code): Agronomy Bldg., University of Wis. Madison, WI 53706

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7200136

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less.

1. SPECIES:

[1] 1 = SATIVA 2 = BYZANTINA 3 = OTHER (Specify) _____

2. GROWTH HABIT:

[3] 1 = WINTER 2 = SEMIWINTER 3 = SPRING

[3] JUVENILE GROWTH: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT

STANDARD VARIETIES

1 = JAYCEE 2 = CLINTLAND 64 3 = CAYUSE 4 = NORLINE 5 = YANCEY 6 = FLORIDA 501

3. MATURITY (50% flowering):

8/27/76 [0][0] DAYS EARLIER THAN ..... [4] STANDARD VARIETY [0][4] DAYS LATER THAN ..... [2] STANDARD VARIETY 8/27/76

[3] Season: 1 = VERY EARLY (Jaycee) 2 = EARLY (Nodaway 70) 3 = MIDSEASON (Clintford)
4 = LATE (Lodi) 5 = VERY LATE (Garry) 6 = EXTREMELY LATE (Mackinaw)

4. PLANT HEIGHT (From soil level to top of head):

[0][8][1] CM. TALL

[1][0] CM. SHORTER THAN .... [4] (Lodi) STANDARD VARIETY 8/27/76

[0][2] CM. TALLER THAN ..... [2] STANDARD VARIETY 8/27/76

5. STEM:

[2] DIAMETER: 1 = FINE (Kherson) 2 = MEDIUM (Clintford) 3 = COARSE (Nodaway 70)

[1] HAIRINESS AT UPPER CULM NODES: 1 = HAIRLESS 2 = HAIRY

[1] MATURE STEM COLOR: 1 = YELLOW 2 = REDDISH

6. LEAF: (Leaf Color: The Royal Horticultural Society's or any recognized color chart should be used to determine the leaf color of the described variety.)

[2] CARRIAGE: 1 = DROOPING (Random) 2 = ERECT (Walken)

[3] COLOR: 1 = YELLOW GREEN 2 = LT. GREEN 3 = DK. GREEN 4 = BLUE GREEN

[1][3] MM. WIDTH (First leaf below flag leaf) [1] LEAF MARGIN: 1 = GLABROUS 2 = CILIATE

[2] LIGULE: 1 = ABSENT 2 = PRESENT [1] LEAF SHEATH: 1 = HAIRLESS 2 = HAIRY

7. HEAD:

[1] PANICLE SHAPE: 1 = EQUILATERAL 2 = INTERMEDIATE 3 = SIDE PANICLE (Unilateral)

[1] ATTACHMENT OF LOWER WHORL OF BRANCHES: 1 = FIRST NODE 2 = SECOND NODE (False node)

[2] PANICLE SIZE: 1 = SMALL (Yancey) 2 = MEDIUM (Walken) 3 = LARGE (Markton)

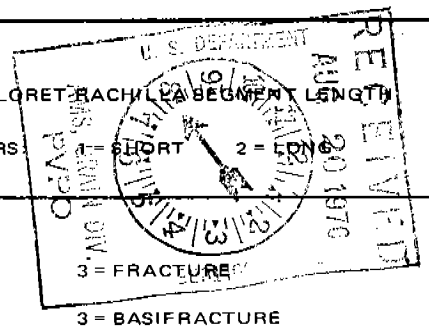
[1] PANICLE WIDTH: 12 cm. 1 = NARROW (Gopher) 2 = MIDBROAD (Yancey) 3 = BROAD (Nodaway 70)

[2][0] CM. PANICLE LENGTH [2][4] NUMBER OF BRANCHES [0][6] NUMBER OF WHORLS OF BRANCHES

[1] POSITION OF BRANCHES: 1 = ASCENDING (Yancey) 2 = SPREADING (Cayuse) 3 = DROOPING (Markton)
4 = PECTINATE (White Tartar) 5 = CONFUSED (Storm King)

72-136

FORM 470-35 (REVERSE)



8. RACHIS:

2 — 1 = RECURVED (Yancey) 2 = ERECT (Walken)

19 — MM. SECOND FLORET RACHILLA SEGMENT LENGTH

1 — SECOND FLORET RACHILLA SEGMENT: 1 = HAIRLESS 2 = HAIRY

[ ] — RACHILLA HAIRS: 1 = SHORT 2 = LONG

9. SPIKELET:

3 — SPIKELET SEPARATION BY: 1 = ABSCISSION 2 = SEMIABSCISSION 3 = FRACTURE

1 — FLORET SEPARATION BY: 1 = DISARTICULATION 2 = HETEROFRACTURE 3 = BASIFRACTURE

20 — FLORETS PER SPIKELET (mean no.)

10. GLUMES: (Glume Color: The Royal Horticultural Society's or any recognized color chart should be used to determine the color of the described variety.)

07 — MM. WIDTH

21 — MM. LENGTH

09 — NO. OF VEINS ON GLUMES

1 — COLOR: 1 = WHITE 2 = YELLOW 3 = RED 4 = STRIPED

11. LEMMA: (Lemma Color: The Royal Horticultural Society's or any recognized color chart should be used to determine the color of the described variety.)

14 — MM. LENGTH

1 — HAIRINESS OF DORSAL SURFACE: 1 = HAIRLESS 2 = HAIRY

2 — COLOR: 1 = WHITE 2 = YELLOW 3 = RED 4 = GRAY 5 = BLACK

12. AWN (First floret):

2 — OCCURENCE: 1 = ABSENT (Walken) 2 = INFREQUENT (Yancey) 3 = COMMON (Chilocco) 4 = FREQUENT (Random)

[ ] — TYPE: 1 = NON-TWISTED 2 = TWISTED 3 = TWISTED GENICULATE

[ ] — MM. AWN LENGTH

13. SEED:

2 — FLORESCENCE UNDER ULTRAVIOLET LIGHT: 1 = FLORESCENT 2 = NON-FLORESCENT

2 — BASAL HAIR: 1 = ABSENT (Florida 501) 2 = ABSENT TO FEW (Yancey) 3 = FEW TO SEVERAL (Lee) 4 = SEVERAL TO NUMEROUS (Florilee) 5 = NUMEROUS (Red Rustproof)

03 — MM. BASAL HAIR LENGTH

280 — GMS. PER 1,000 SEEDS

204 — % GROAT PROTEIN

21 — MG. GROAT WEIGHT (each)

083 — % GROAT OIL

14. INSECTS: (0 = NOT TESTED, 1 = SUSCEPTIBLE, 2 = RESISTANT)

1 — CEREAL LEAF BEETLE

0 — BLUEGRASS BILLBUG

0 — GRAIN BUG (C. Sayi)

0 — NEMATODE (Type)_____

0 — GREEN BUG (Biotype)_____

OTHER *(Specify)*_____

15. DISEASE: (0 = NOT TESTED, 1 = SUSCEPTIBLE, 2 = RESISTANT)

1 — HALO BLIGHT

0 — HELMINTHOSPORIUM LEAF BLOTCH

0 — POWDERY MILDEW

[ ] — YELLOW DWARF VIRUS Int.

1 — SEPTORIA LEAF BLOTCH

2 — VICTORIA BLIGHT

0 — SOIL-BORNE MOSIAC

[ ] — OTHER *(Specify)*_____

SPECIFY RACES TESTED:

	RACES SUSCEPTIBLE	RACES RESISTANT
[ ] CROWN RUST	264B	326
[ ] STEM RUST	AB genes 6AFH	72, 2AH
[ ] COVERED SMUT		
[ ] LOOSE SMUT		

16. INDICATE VARIETY YOU BELIEVE MOST CLOSELY TO RESEMBLE THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
PLANT TILLERING	Froker	LEAF COLOR	Goodland
LEAF SIZE	Goodland	LEAF CARRIAGE	Goodland
SEED COLOR	Beedee	SEED SHAPE	Goodland

COMMENTS: